REMARKS/ARGUMENTS

Reconsideration of this application as amended is respectfully requested. Claims 1-39 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Application No. 4,915,468 by Kim et al. ("Kim"). Claims 40-50 stand allowed.

Claims 1, 5, 10, 14, 35, 40, and 41 have been amended. Claim 38 has been cancelled without prejudice. Applicants made minor grammatical changes to claims 5, 10, 14, 40, and 41. Applicants reserve all rights with respect to the application of the doctrine equivalents.

The Examiner has rejected claims 1-23 under 35 U.S.C. 102(b) as being anticipated by Kim. The Examiner states that Kim discloses the following:

> Kim '468 teaches (Figs. 1-40) a method and apparatus for measuring the power spectrum (or modal intensities) of an optical signal comprising: a signal light source 3600, an acousto-optic means 3630 coupled to a multimode optical fiber 3654, 3660 which is also performs mode coupling between core/cladding modes and is used with mode coupler 3680, 3676 with polarization filters 3692, 3690 wherein a pair of detectors 3700, 3702 detects/measures the power or intensity and phase of first and second coupled modes using processor means 3730, 3710, 3712 and uses the received results to change the signal to an acousto-optical means 3630 using feedback 3704, 3706, which clearly, fully meets applicant's claimed limitations.

(Office Action dated March 7, 2003 p. 3)

However, applicants respectfully submit that claim 1, as amended, is not anticipated under 35 U.S.C. § 102(b) by Kim. Claim 1, as amended, states:

> 1. A method of measuring a power spectrum of an optical signal, comprising:
> transmitting the optical signal through an optical fiber;
> coupling a power of at least one wavelength of the optical signal from a first mode to a second mode of the waveguide, wherein a first acoustic wave applied to the optical fiber couples the at least one wavelength from the first mode to the second mode, a second acoustic wave applied to the optical fiber couples the at least one wavelength from the first mode to the second

> mode, and the second acoustic wave is orthogonal to the first acoustic wave; and
>
> measuring the power of the optical signal coupled from the first mode to the second mode at a detector.

(Emphasis Added)

Kim discloses use of an acoustic signal to shift a mode of an optical signal.

> It has been shown that when a propagating acoustic wave causes a periodic, traveling stress on an optical fiber, the effect of the traveling acoustic wave is to cause light to be coupled from one polarization mode to another polarization mode and be shifted in frequency. See for example W. P. Risk, et al., "Single-Sideband Frequency Shifting in Birefringent Optical Fiber," SPIE Vol. 478-Fiber Optic and Laser Sensors II (1984), pp. 91-97, in which this effect is discussed with respect to coupling between polarization modes in a birefringent fiber. A similar effect has been described for multimode fibers for an externally applied stress to the fiber. See for example, copending U.S. application Ser. No. 556,636, "Single-mode Fiber Optic Single-sideband Modulator," filed Nov. 30, 1983, and assigned to the same assignee as the present application, now U.S. Pat. No. 4,684,215, issued on Aug. 8, 1987.

(Kim Col. 20, Lns 12-29)

However, Kim is completely silent on supplying a second acoustic wave that is orthogonal to the first acoustic wave to also cause the optical signal to couple from the first mode to the second mode. Kim does not disclose the limitations stated in claim 1. Therefore, claim 1, as amended, patentably distinguishes over Kim.

Given that claims 2-23 depend upon and include the limitations of claim 1, applicants respectfully submit that claims 2-23 also patentably distinguish over Kim.

The Examiner also rejected claims 24-34 under 35 U.S.C. 102(b) as being anticipated by Kim. The Examiner states that Kim discloses the following:

> Kim '468 teaches (Figs. 1-40) a method and apparatus for measuring the power spectrum (or modal intensities) of an optical signal comprising: a signal light source 3600, an acousto-optic means 3630 coupled to a multimode optical fiber 3654, 3660 which is also performs mode coupling between core/cladding modes and is used with mode coupler 3680, 3676

> with polarization filters 3692, 3690 wherein a pair of detectors 3700, 3702 detects/measures the power or intensity and phase of first and second coupled modes using processor means 3730, 3710, 3712 and uses the received results to change the signal to an acousto-optical means 3630 using feedback 3704, 3706, which clearly, fully meets applicant's claimed limitations.

(Office Action dated March 7, 2003 p. 3)

However, applicants respectfully submit that claim 24 is not anticipated under 35 U.S.C. § 102(b) by Kim. Claim 24 states:

> 24. A method of monitoring a power spectrum of an optical signal, comprising:
> changing polarizations of the optical signal in a polarization scrambler;
> coupling a first mode of the optical signal to a second mode at a mode converter;
> detecting the second mode at a detector;
> generating a signal responsive to detection of the second mode;
> averaging the signal to measure a power of the second mode,
> wherein measurement of the power of the second mode is polarization independent.

(Emphasis Added)

However, Kim is completely silent on changing polarizations of the optical signal in a polarization scrambler. Kim does not disclose use of a polarization scrambler at all. Nor does the Examiner assert that Kim discloses a polarization scrambler. If a reference does not discuss an element then that reference cannot disclose or suggest the limitation. Kim does not disclose the limitations stated in claim 24. Therefore, claim 24 patentably distinguishes over Kim.

Given that claims 25-34 depend upon and include the limitations of claim 23, applicants respectfully submit that claims 25-34 also patentably distinguish over Kim.

The Examiner also rejected claims 35-39 under 35 U.S.C. 102(b) as being anticipated by Kim.

However, applicants respectfully submit that claim 35, as amended, is not anticipated under 35 U.S.C. § 102(b) by Kim. Claim 35, as amended, states:

> 35. A spectral monitor, comprising:
> an optical fiber with multiple modes;
> a mode coupler coupled to the optical fiber, the mode coupler provides at least one perturbation in the optical fiber to create a coherent coupling between the first mode to the second mode in the optical fiber;
> a polarization scrambler coupled to the mode coupler;
> a detector positioned to detect a coupling power spectrum of the coupling from the first mode to the second mode; and
> a feedback control coupled to the mode coupler and the detector to control the power of the coupling power.

(Emphasis Added)

Kim is completely silent on a polarization scrambler. Kim discloses a mode stripper (3624) coupled to a transducer (3630). (See Kim Figure 39 and Col. 57, Lns. 55-62). Kim does not disclose use of a polarization scrambler at all. Kim does not disclose the limitations stated in claim 35. Therefore, claim 35 patentably distinguishes over Kim.

Given that claims 36, 37 and 39 depend upon and include the limitations of claim 35, applicants respectfully submit that claims 36, 37, and 39 also patentably distinguish over Kim.

CONCLUSION

It is respectfully submitted that in view of the amendments and remarks set forth herein, the rejections and objections have been overcome. An Information Disclosure Statement (IDS) was submitted with this amendment on June 9, 2003; copies of the IDS and PTO 1449A are resubmitted herewith, without cited references previously submitted on June 9, 2003). Applicants reserve all rights with respect to the application of the doctrine equivalents. If there are any additional charges, please charge them to our Deposit Account No. 02-2666.

Respectfully submitted,
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